



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,953	04/11/2001	Marco Racanelli	00CON161P	3823

25700 7590 10/17/2002

FARJAMI & FARJAMI LLP
16148 SAND CANYON
IRVINE, CA 92618

EXAMINER

MALDONADO, JULIO J

ART UNIT	PAPER NUMBER
----------	--------------

2823

DATE MAILED: 10/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/833,953

Applicant(s)

RACANELLI, MARCO

Examiner

Julio J. Maldonado

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 20 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-15 and 17-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-15 and 17-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicant's cancellation to claim 16 is acknowledged. Claims 1-15 and 17-25 are pending in this application.

Claim Objections

2. Claims 1, 9, 12, 20 and 23 objected to because of the following informalities: in claim 1 says "...forming a transistor gate and a field oxide region; doping with a first dopant said layer over said transistor gate ___ without..." should say "...forming a transistor gate and a field oxide regions; doping with a first dopant said layer over said transistor gate regions without...". In claims 9 and 20 says "...approximately 6.5×10^{15} ..." should say "...approximately 6.5×10^{15} ...". In claims 12 and 23 says "...approximately 1.0×10^{15} ..." should say "...approximately 1.0×10^{15} ...". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 14 and 17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants claim an "overdoping" step of a first dopant. However, such step is not disclosed in the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 6-12, 14-23 rejected under 35 U.S.C. 102(b) as being anticipated by Zaccherini (U.S. 5,436,177).

In reference to claim 1 and 14 Zaccherini (Fig.1-6) teaches an analogous method to form implanted regions including the steps of forming a layer (7) comprising polycrystalline silicon over a transistor gate (4) and a field oxide (5) regions; forming a doping barrier (10) above said polycrystalline silicon over said field oxide region (5); overdoping with a first dopant (11) said layer over said transistor gate; removing said doping barrier (10); doping said layer over said transistor gate (4) and said field oxide regions (5) with a second dopant (13) so as to form a high resistivity resistor in said layer (7) over said field oxide region (5) (column 3, lines 1-53).

In reference to claim 3, 6-12 and 15-23 Zaccherini teaches that said layer (7) comprises polysilicon; that said field oxide (5) comprises silicon oxide; that the first dopant (11) is an N-type dopant comprising phosphorous at a dose of approximately 6.5×10^{15} atoms per square centimeter; that the second dopant is a P-type dopant comprising boron at a dose of approximately 1.0×10^{15} atoms per square centimeter; and that said doping barrier (10) comprises a photoresist; that the polycrystalline silicon layer includes a gate region (4) (column 3, lines 1-53).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 2, 4-5, 13 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaccherini ('177) in view Liu et al. (U.S. 6,165,861).

In reference to claims 2, 4-5, 13 and 24-25 Zaccherini teaches all aspects of the invention but fails to teach the formation of a contact region for said resistor comprising a silicide. Nevertheless, Liu et al. (Fig.7) teaches in an analogous method for forming integrated resistors including a contact region comprising a titanium silicide (20). Furthermore, Liu et al. teaches that the transistor gate can be a gate of a PFET or a gate of a NFET (column 4, lines 11-24).

Therefore, it would have been obvious to one of basic skill in the art to combine the teachings of Zaccherini and Liu et al. to arrive the claimed invention. The motivation/suggestion would be to make interconnections to other levels within the circuit and providing shielding of the resistor during subsequent processing (column 4, lines 25-41). Furthermore, it would have been obvious to one skilled in the art that by using additional masking steps, both PFET and NFET can be made into the substrate (column 4, lines 11-24).

Response to Arguments

9. Applicant's arguments filed 8/20/2002 have been fully considered but they are not persuasive.

Applicants argue that the term "region" in claim is grammatically correct and should not be replaced by the term "regions" as suggested by the examiner (page 5, lines 6-10). In response to this argument, claim 1 cites "...forming a layer over a transistor gate and a field oxide region...". Since claim 1 is citing two regions instead of one, the term "regions" is grammatically correct. Also, Applicants argue that the symbol "*" is well known symbol in a multiplication operation. While this is well known, it is also well known that the proper term to represent a number in scientific notation is the term "x" not the term "*". Appropriate correction is required.

Furthermore, applicants argue, "...Zaccherini teaches away from forming a high resistivity resistor in a layer over a field oxide region, since Zaccherini discloses a wide range of doping dosages..." (page 8, lines 8-14). However, applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections. The dosage ranges disclosed in Zaccherini overlap those of the claimed invention. In conclusion, the examiner respectfully submits that Zaccherini does not teach away from the claimed invention

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via julio.maldonado@uspto.gov. If attempts to reach the examiner by telephone

Art Unit: 2823

are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (703) 308-4918.

2. Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

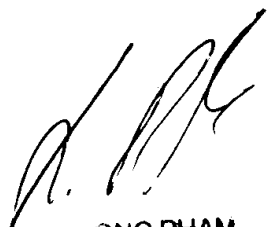
Julio J. Maldonado

Patent Examiner

Art Unit 2823

703-306-0098

julio.maldonado@uspto.gov



LONG PHAM
PRIMARY EXAMINER